PERSONALITY TRAITS OF TRACK AND FIELD PARTICIPANTS

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by

Harlan Conway Ferguson

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Approved by Committee:

Neal Trembley
Chairman

Earle I Canfield
Dean of the School of Graduate Studies

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CHAPTER I

THE PROBLEM, DEFINITION OF TERMS, PROCEDURE, AND LIMITATIONS

Many coaches, spectators, and other interested persons have often said that track and field participants are a unique group of athletes to work with because there are three groups of participants and therefore three groups of temperaments.

I. THE PROBLEM

Statement of the problem. The problem of this study was to compare, as measured by the Thurstone Temperament Schedule, the personality ratings of the following groups of track and field participants at the University of Nebraska at Omaha and the University of Nebraska at Lincoln:

1. Field event participants and distance runners.
2. Field event participants and sprinters.
3. Sprinters and distance runners.

Importance of the study. The thought that a knowledge of personality plays a very important role in the learning process has had a general acceptance among educators. Melton suggests there is a definite relationship between personality

and vocational interest.[1]

Olson further advances the idea that psychological capacities have an effect on success in college.[2] Tutko and Richards suggest there is no other area in which problem behavior is more likely to occur than in athletics.[3] These men report athletes should be given individual attention; if they were, this could make a difference between their success and failure as athletes. They also suggest that the act of competition may have an inherent physical risk, since the athlete is constantly being evaluated and this evaluation results in the athlete being anxious. In addition, they state that traits and talents that typify athletic success help to make the selection of athletes that are most likely to succeed. Since Bucher classifies athletics as one aspect of education through its contributions to the aims of education, it appears justifiable to regard the coach as a teacher, thereby giving the same importance to personality in learning on the playing

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[1]William R. Melton, Jr., "Investigation of Relationship between Personality and Vocational Interests," Journal of Educational Psychology, XLVII (March, 1956), 163-74.

[2]E. A. Olson, "Relationship between Psychological Capacities and Success in College," Research Quarterly, XXVII (March, 1956), 79-83.

[3]Thomas A. Tutko and Jack W. Richards, The Psychology of Coaching (New Jersey: Allyn and Bacon, Inc., 1970), pp. 37-51.

field as in the classroom.[1]

This discussion shows that although personality plays an important part in many aspects of our life, the patterns are complex and not easily defined and investigated. There is a definite need for better understanding of the competitive behavior of individuals; and because of this need, further study is indicated. Through the studies of personality traits of those who have participated in athletics within a certain area of a specific sport, and those personalities on an individual and group level, some information may be gained which may help in directing the course of the athletic programs.

II. DEFINITIONS OF TERMS USED

Field event participants. The term "field event participants" in this study refers to only those track and field participants who competed in any field event; shot put, discus throw, long jump, triple jump, high jump, and pole vault.

Distance runners. "Distance runners" refers to any man whose primary area of concentration as a track performer was the running of any distance from 880 yards through the six mile run including cross country performers.

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[1]Charles A. Bucher, Foundations of Physical Education (St. Louis and New York: The C. V. Mosby Company, 1964), pp. 154-64.

Sprinters. The term "sprinters" in this study includes any track performer who runs a race of 440 yards or less and all hurdle races.

III. PROCEDURE

Available literature on the subject was reviewed.

The subjects selected for study were male track and field participants, who were enrolled at the University of Nebraska in Omaha and at the University of Nebraska in Lincoln during the academic year of 1970-71. Both of these are coeducational state universities. The University of Nebraska in Omaha had an approximate enrollment of seven thousand full time students in 1970-71 and the University of Nebraska at Lincoln had approximately seventeen thousand full time students during the academic year of 1970-71.

The University of Nebraska at Lincoln is a member of the Big Eight Conference. Athletic competitions for the university are held in the following sports: football, cross country, basketball, swimming, wrestling, gymnastics, baseball, golf, tennis, and track and field. These competitions are held with universities and colleges in the entire United States. Track and field competitors at the University of Nebraska at Lincoln have competed in the big "Relay" meets of each year, which include the Drake Relays, Texas Relays,

and Kansas Relays. They have enjoyed considerable success in these meets and have furnished strong competition for the Big Eight Indoor and Outdoor Conference Titles.

The University of Nebraska at Omaha is a member of the Rocky Mountain Athletic Conference and competes in football, cross country, basketball, wrestling, swimming, tennis, golf, baseball, and track and field within the conference. It also competes with other colleges and universities in neighboring states. Its participants have had little success in track and field, although through the years, outstanding individuals have been produced. In other athletic competitions, they have had moderate success, with the exception of their wrestling team, which has enjoyed great success by winning the National Association of Intercollegiate Athletics National Team Championship in 1970.

The instrument used to evaluate the personality traits of the selected athletes was the Thurstone Temperament Schedule. The Examiner's Manual for the Thurstone Temperament Schedule states that "the primary aim of the Thurstone Temperament Schedule is to evaluate an individual in terms of his relatively permanent traits."[1] The manual also stresses the fact that the test is designed to describe

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[1]L. L. Thurstone, Examiner Manual for the Thurstone Temperament Schedule (Chicago: Science Research Associates, Inc., 1950), p. 3.

normal, well-adjusted individuals, and is not intended to reflect psychotic or neurotic tendencies.

The test is made up of 140 "yes and no" questions which measure seven areas of personality: Active (the person who likes to hurry or be "on the go"); Vigorous (the person who likes outdoors occupations or physical activities); Impulsive (the person who has the tendency to make quick decisions and the ability to change easily from one task to another); Dominant (the desire for assuming responsibility and leadership); Stable (those who can remain calm and relaxed in a crisis): Sociable (those who like other people and can get along well with them); Reflective (those who prefer quiet work and reflective thinking).

The test may be given with or without supervision as the instructions are clear and the items well-spaced. Separate answer sheets are available and may be machine-scored or hand-scored, whichever is preferred.

During the first week in May, following the three big "Relay" meets--Drake Relays, Texas Relays, and Kansas Relays--, but before both conference meets, the Thurstone Temperament Schedule was administered to the selected athletes. The athletes from both the University of Nebraska at Omaha and the University of Nebraska at Lincoln were

administered the Thurstone Temperament Schedule in a classroom at their respective universities by the investigator.

There was a total of seventy-eight athletes taking the Thurstone Temperament Schedule, with twenty-nine of the athletes from the University of Nebraska at Omaha; eight field event participants, seven distance runners, and fourteen sprinters. There were forty-nine from the University of Nebraska at Lincoln; fourteen field event participants, seventeen distance runners, and eighteen sprinters who took the Thurstone Temperament Schedule.

Upon completion of the test, the raw scores were obtained by hand scoring by the investigator. The raw scores may be found in Appendix A.

IV. LIMITATIONS

Limitations had to be set before starting on such an investigation as this. The subjects tested were limited to selected track and field athletes from the University of Nebraska at Omaha and the University of Nebraska at Lincoln. These seventy-eight were a relatively small sampling of the many track and field athletes found throughout the world. The test was also limited to psychological and personality differences among the three types of performers. No pre-college motivational factors, which helped the athletes select a certain event or group of events as their major area of concentration, in track and field, was considered.

CHAPTER II

REVIEW OF RELATED STUDIES

Many studies have been made dealing with many aspects of athletics, even several studies of various phases of personality traits. Some of the studies that have been made are only remotely related to this investigation. Only the literature that was pertinent to the problem at hand was reviewed.

I. REPORT OF RESEARCH FINDINGS

Kroll used the Sixteen Personality Factor Questionnaire in studying the personality profiles of ninety-four wrestlers of various abilities.[1] In the first group, he used twenty-eight wrestlers who either represented the United States on the Olympic Team, or were champions of either the National Collegiate Athletic Association or National Association of Intercollegiate Athletics, or were place winners in these two National Tournaments. Thirty-three wrestlers, who were rated by their college coaches as being excellent wrestlers, composed the second group.

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[1]Walter Kroll, "Sixteen Personality Factor Profiles of Collegiate Wrestlers," Research Quarterly, XXXVIII (March, 1967), 49-57.

The third group was composed of thirty-three wrestlers, who ranked average or below average in wrestling, according to their collegiate coach. Discriminant function analyses failed to establish profile differences. When the results of the testing, of the wrestlers, were compared to norms, the wrestlers demonstrated a significantly higher score on the factor indicating tough-mindedness, self-reliance, and masculinity. There was no support found for the suggestion that wrestlers may possess a neurotic profile.

A study conducted by Johnson and Hutton using a projective test, the H-T-P, as to the effects of combative sport upon personality dynamics, found that wrestlers, prior to their match, have their level of functioning intelligence dropping from high average to low average.[1] There are strong indications of frightened anxiety and increased neurotic tendencies. Aggressive feelings were more in evidence and there was an increased tendency to hold their feelings within strict control, directing them inwardly.

Their post match results found their intelligence returning to high average and neurotic tendencies were no longer in evidence. Their aggressive feelings were greatly reduced.

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[1]William P. Morgan, Contemporary Readings in Sport Psychology (Springfield, Illinois: Charles C. Thomas, Publisher, 1970), pp. 294-95.

Normally, the wrestlers were found to have a higher degree of aggressiveness or pent up feelings of hostility than is normally found.

Johnson, Hutton, and Johnson used two projective tests, the H-T-P and the Porschach to study the personality traits of twelve successful athletes.[1] Only National Champions or All-Americans were used as subjects. Four of these were football players, two lacrosse players, two wrestlers, two boxers, one middle distance track man, and one rifle marksman. This study showed the athletes to be (1) extremely aggressive, (2) lacking in strict emotional control, (3) possessing a high and generalized anxiety, (4) of a high level of intellectual aspirations, and (5) exceptionally self-confident. The tests also showed that the subjects were able to focus their personality resources toward the objectives they wished to achieve as outstanding athletes. The tests also showed these outstanding athletes had an exceptional concern for physical power and physical perfection in their respective athletic endeavors.

Using cadets entering the United States Military Academy, Werner and Goltheil, administered the Cattell

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[1]Warren R. Johnson, Daniel C. Hutton, and Granville B. Johnson, Jr., "Personality Traits of Some Champion Athletes As Measured by Two Projection Tests: Rorschach and H-T-P," Research Quarterly, XXV (December, 1954), 484-85.

Sixteen Personality Factor Test to these cadets to study the relationship between their personality development and participation in college athletics.[1]

On the basis of past histories of athletic participation, a group of three hundred forty cadets were designated as athletes and one hundred sixteen were designated as athletic non-participants. The test was administered twice, just after entrance and just prior to graduation.

Entering cadet athletes were significantly different from non-participants on seven of the sixteen personality factor scales. The proportion of athletes who graduated from the Academy was significantly greater than the proportion of non-participants graduating. It is to be assumed that if participation in athletics in college has an effect on personality structure, the effect would be expected to be greater on individuals with little previous athletic participation than on accomplished athletes. However, despite four years of regular athletic participation, the designated non-participant group was not found to change in personality structure as measured by the Sixteen Personality Factor Test (1) to a greater extent than the athletes, (2) in a

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[1]Alfred C. Werner and Edward Goltheil, "Personality Development and Participation in College Athletics," Research Quarterly, XXXVII (March, 1966), 126-31.

different pattern than did the athletes, and (3) nor so as to become more like the athletes.

Thus, no evidence was found to support the view that college athletics significantly influences personality structure.

Berger and Littlefield compared football athletes and nonathletes using the Scholastic Aptitude Test and the California Psychological Inventory.[1] They used the outstanding football athletes who were members of the football team at Texas Tech. Forty-three athletes, thirty-nine freshmen and four sophomores were selected randomly from seventy-eight freshmen and ten sophomores. The second group was composed of nonoutstanding football athletes, who had earned a letter in high school, but had not participated in college athletics. This group consisted of forty-four freshmen and five sophomores, a total of forty-nine. The third group was composed of students who had never participated in athletics, either on the interscholastic or intercollegiate level. This group consisted of forty-four freshmen and five sophomores, a total of forty-nine.

These student groups were given the two tests mentioned, the Scholastic Aptitude Test being used to equate the

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[1]Richard A. Berger and Donald H. Littlefield, "Comparison between Football and Nonathletes on Personality," Research Quarterly, XL (December, 1969), 663-65.

three groups on academic achievement. The California Psychological Inventory was used as the criterion for comparison between the groups. The insignificant differences in the California Psychological Inventory scores found between outstanding athletes, nonoutstanding athletes, and nonathletes when the groups were equated on the Scholastic Aptitude Test scores, indicated that participation in varsity football may not develop more favorable characteristics of social interaction and social living than nonparticipation. However, because of the multitudinous factors affecting personality, which were not accounted for in the study, it was difficult to assess the effects of sports participation alone on personality.

A study by Jeppson dealt with personality traits of successful athletes as compared to those who were less successful.[1] The successful athletes were first team members of the football and basketball teams and the first four cross country runners at South Dakota State University, as compared to the remainder of the squad in that sport. The Minnesota Multiphasic Personality Inventory was used as the measuring device. The secondary problem of the study was to compare personality test scores of the senior athletes and the scores made by freshmen.

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[1]Gordon D. Jeppson, "A Comparative Study of Selected Personality Traits of Varsity Athletes," (unpublished Master's thesis, South Dakota State University, August, 1964).

Jeppson reached conclusions that found the successful athletes were more sensitive and suspicious, had more rigid opinions, and were more egotistical than the less successful athletes. The seniors were more matured in approach to adult problems and became less worried about their health than the freshmen. The seniors also expressed less depression, less worry, had greater self confidence, and a more adequate social adjustment.

A study that was concerned with an attempt to determine whether any differences existed between high school athletes and non-athletes, and between the participants of various sports was made by Slusher.[1] Using the Minnesota Multiphasic Personality Inventory and Lorge-Thorndike Intelligence Test as measuring devices, four hundred athletes and one hundred non-athletes were selected as subjects. There were one hundred baseball players, one hundred football players, one hundred basketball players, fifty swimmers, and fifty wrestlers of the athletic group. All of the athletes had received a varsity letter award. The non-athletes were students who did not participate in any sports activity. Study results indicated that the femininity trait was lower in athletes than in non-athletes. All athletes except the swimmers ranked higher in hypochondriasis than

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[1]Howard S. Slusher, "Personality and Intelligence Characteristics of Selected High School Athletes and Non-athletes," Research Quarterly, XXXV (December, 1964), 539-45.

the non-athletes. The basketball players were the most deviant of all groups tested, overcome with physical symptoms and a relative lack of repression. Football players and wrestlers had strong neurotic profiles while the swimmers had the least neurotic tendency. The intelligence test showed that the athletes had a significantly lower intelligence than did the non-athletes.

Hunt conducted a study in the same area as Slusher.[1] He made a cross racial comparison of personality traits between athletes and non-athletes.

The subjects were students from the University of New Mexico and ranged from freshmen to seniors for the non-athlete group and from sophomores to seniors for the athletes. There were fifty-seven athletes of which twenty-two were Negroes and thirty-five were white. Of the fifty-four non-athletes, nineteen were Negroes and thirty-five were white. The Gordon Personal Profile was used as the measuring instrument.

Upon completion of the study by Hunt, he concluded that athletes, regardless of their ethnic background, tend to have different selected personality traits when compared to non-athletes. By controlling the ethnic background variable, the white varsity athletes showed a significant

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[1]David Hunt, "A Cross Racial Comparison of Personality Traits between Athletes and Non-athletes," Research Quarterly, XL (October, 1969), 704.

difference from the Negro and white non-athletes in selected personality traits. There was also a significant difference in selected personality traits between Negro varsity athletes and Negro non-athletes.

White varsity athletes and Negro varsity athletes tend to have similar selected personality traits as do Negro and white non-athletes.

Thune compared one hundred active YMCA weightlifters with one hundred active YMCA members who participated in other physical activities.[1] Several standard personality inventories were administered. The author discussed the results by stating:

> 1. Training with weight probably appeals to a group that with respect to interests, attitudes, and personality separates them from the rest of the active YMCA membership.
>
> 2. A logical classification of the differentiating items indicates that the members of the weight-lifting group feel more strongly than the controls in that their health has improved, that basically they are shy, that they lack self-confidence, and they do not obtain satisfaction, through participating at a loss, in the more traditional physical activities. They want to be strong and dominant, emulating other men.

A study was made by Biddulph of the athletic achievement and the personal and social adjustment of high school

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[1]John B. Thune, "Personality of Weightlifters," Research Quarterly, XX (October, 1949), 296-306.

boys.[1] The California Test of Personality was used as the measuring device on 461 boys from the Salt Lake City high schools. They were tested in six athletic events to determine a high and a low athletic achievement group. The fifty boys with the highest achievement score were placed in the superior athletic achievement group.

The results showed the superior athletic group had a higher mean self adjustment score. Although the superior athletic achievement group did not show a significantly higher mean on the two other social adjustments, teacher ratings and sociograms, a greater degree of personal and social adjustment was made by the superior athletic group. The author concluded it was important for all boys, instead of a few, to develop motor ability.

Flanagan conducted a study whereby he attempted to anticipate the types of personality differences between activity groups in advance: hence, a combination of portions of various tests was administered.[2] Two hundred twenty-one students were given test questions concerning Ascendance-Submission, Masculinity-Femininity, Extroversion-Introversion,

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[1]Lowell G. Biddulph, "Athletic Achievement and the Personal and Social Adjustment of High School Boys," Research Quarterly, XXV (March, 1954), 1-7.

[2]Lance Flanagan, "A Study of Some Personality Traits of Different Physical Activity Groups," Research Quarterly, XXII (March, 1951), 312-23.

and Emotional Stability and Emotional Instability. These items were taken from the Guilford-Martin Inventory, Allport's Ascendance-Submission Scale, Guilford's Introversion-Extroversion Test, and the Emotional Stability sections of Smith's Human Behavior Inventory. Participants in fencing, basketball, boxing, swimming, volleyball, and badminton were the types of activity groups tested. The results showed the fencers to be more ascendant than the participants in basketball, volleyball, and boxing. The fencers were more feminine than basketball players. Badminton players were more outgoing, as indicated by a higher score on the extrovert scale, than the volleyball players and volleyball participants were more emotionally unstable than basketball players.

The California Personality Inventory and the Phillips JCR test was used by Merriman in making a comparison between personality traits and motor ability.[1] Eight hundred eight boys were divided into the following five groups: upper and lower level motor ability, athletes and non-athletes who were matched according to motor ability scores, participants in team sports, participants in individual sports, and boys who participated in both team and individual sports.

The upper motor ability group scored significantly higher than the lower motor ability group on the measure of

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[1]J. Burton Merriman, "Relationship of Personality Traits to Motor Ability," Research Quarterly, XXXI (May, 1960), 163-73.

poise ascendancy and self assurance and on the measures of intellectual and interest modes.

Few significant differences were found between scores when the athletes and non-athletes were matched according to motor ability. Few significant differences were found between participants in team sports, participants in individual sports, and participants in team-individual sports. The results indicated that motor ability is related to personality traits.

Peterson, Weber, and Trousdale conducted a comparison of the personality traits of women in team sports versus women in individual sports.[1] The subjects were chosen from a selected group of 156 women Amateur Athletic Union athletes and the 1964 United States Olympic Team. Those women who agreed to take part in the study were sent a copy of Form "A" of the Sixteen Personality Factor Questionnaire, which was the instrument used to measure selected personality factors.

The results indicated that the women athletes engaged in individual sports are high in such personality traits as dominance, self-sufficiency, and impulsiveness; they like to make their own decisions and may express dissatisfaction with group situations and they place a high premium on procedural rules. They tend to be more independent minded, introverted,

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[1]Sheri L. Peterson, Jerome C. Weber, and William W. Trousdale, "Personality Traits of Women in Team Sports Versus Women in Individualized Sports," Research Quarterly, XXXIII (December, 1967), 686-90.

and self-absorbed. They are self-assured and have a high degree of emotional, artistic, and creative interest and enjoy attention. They are more radical in thinking and less inhibited.

In this study the team sport participants proved to be self-sufficient but not as self-absorbed or introverted as the individual sport participants. They are steady, practical, dependable, and interested in immediate issues. They are self-reliant, responsible, and emotionally disciplined, and tend to be affected by fads. They are realistic, generate group solidarity, and are higher in sophistication.

Both groups showed a little more seriousness than average and had a tendency to express themselves less freely. They were intellectually brighter, more conscientious, aggressive, and persevering. Socially, they tended to be somewhat cool and aloof.

A study conducted, by Lakie on the personality characteristics of certain groups of intercollegiate athletes, showed that personality traits differed (a) among sports groups within the state university and the private university but not within the state colleges, and (b) between athletes attending each of the other three schools.[1] When the 230

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[1]William L. Lakie, "Personality Characteristics of Certain Groups of Intercollegiate Athletes," Research Quarterly, XXXIII (December, 1962), 566-73.

athletes were grouped by sports, irrespective of the school attended, no significant differences were observed.

Five scales from the Omnibus Personality Inventory were combined to form the Attitude Inventory which was administered to 230 athletes from a state university, a private university, and two state colleges to get the above results.

Keogh classified 167 junior and senior male students of the Pomona California high schools, both as to level of motor ability and participation in athletics.[1] The California Personal Inventory was given to the subjects as a measuring instrument.

The results indicated that athletic participation did not appear to have any effect on the measures studied. The pattern of results suggested an expectation hypothesis wherein higher ratings in the personality inventory might be achieved by a group of subjects, who participated at a level which would be expected in relation to their motor ability.

An attempt was made by Shendel to determine if any differences existed in regard to psychological characteristics of athletes and non-athletes at the ninth grade, twelfth

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[1]Jack Keogh, "Relationship of Motor Ability and Athletic Participation in Central Standardized Personality Measures," Research Quarterly, XXX (December, 1959), 438-45.

grade, and college level.[1] Utilizing the California Psychological Inventory, the conclusions were reached that differences did exist, with the most consistent differences occurring between the ninth and twelfth grades. Athletes had a higher overall mean score than non-athletes. College non-athletes scored higher mean scores than did the athletes.

Behrmann conducted an investigation to determine whether there were personality differences between male college freshmen swimmers and nonswimmers.[2] He also wanted to determine the relationship between personality traits and swimming progress among nonswimmers experiencing a common course of instruction in swimming. A maximum ability swimming test and the Guilford-Zimmerman Temperament Survey were the testing devices.

The results showed the nonswimmers had a significantly higher mean on the restraint scale than the swimmers. The swimmers were more ascendant and socially bold, were more sociable and outgoing than the nonswimmers. Both groups showed a significantly low score on the friendliness scale.

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[1]Jack Shendel, "Psychological Differences between Athletes and Non-participants in Athletics at Three Educational Levels," Research Quarterly, XXXVI (March, 1965), 52-67.

[2]Robert M. Behrmann, "Personality Differences between Swimmers and Nonswimmers," Research Quarterly, XXXVIII (May, 1967), 163-71.

Karnes conducted a study of the personality traits of certain athletes in a group sport and in an individual sport.[1] The subjects were thirty-seven non-athletes, fifty-three football players, and thirty-seven track and field participants. The Thurstone Temperament Schedule was the instrument used to measure the personality traits.

This study indicated there were differences between non-athletes, team sport participants, and individual sport participants. The individual sport participants were found to be significantly less dominant than the non-athletes. The non-athletes and team sport participants were closely related in personality traits, while the team sport participants and individual sport participants were not closely related in personality traits.

Booth investigated the personality traits of athletes using the Minnesota Multiphasic Personality Inventory.[2] He made several comparisons in his study: (1) comparison of MMPI scores of athletes with the MMPI scores of non-athletes, (2) comparison of MMPI scores of athletes who competed in team sports with the MMPI scores of athletes who participated

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[1]Robert D. Karnes, "Personality Traits of Selected Athletes at Drake University in a Group and in an Individual Sport" (unpublished Master's thesis, Drake University, August, 1967).

[2]E. G. Booth, Jr., "Personality Traits of Athletes as Measured by the Minnesota Multiphasic Inventory Test," Research Quarterly, XXIX (May, 1958), 127-38.

in individual sports, (3) comparison of MMPI scores of athletes who participated in team sports or individual sports with the MMPI scores of athletes who participated in team-individual sports, (4) comparison of the MMPI scores of athletes who were judged to be good competitors with the MMPI scores of athletes who were judged to be poor competitors, and (5) the selection of items of the MMPI which might discriminate between poor and good competitors.

The significant results of this study were:

1. Non-athletes scored higher than athletes on the interest variable.
2. Freshmen athletes, freshmen non-athletes, and upper class non-athletes scored higher than varsity athletes on the anxiety variable.
3. Non-athletes and freshmen athletes scored lower than varsity athletes and upper class non-athletes on the dominance variable.
4. The social responsibility variable found the upper class non-athletes scoring higher than the freshmen athletes, freshmen non-athletes, and varsity athletes.
5. Varsity athletes participating only in individual sports scored higher on the depression variable than those participating only in team sports.

On the same variable, the varsity athletes who participated in only individual sports scored higher than the varsity athletes who participated in team-individual sports.

6. On the psychasthenia variable, the participants in varsity individual sports scored higher than the athletes who participated in varsity team-individual sports.
7. Poor and good varsity competitors scored higher on the dominance variable than poor freshmen competitors.
8. Of the 550 items, there were twenty-two that discriminated significantly between the good and poor varsity competitors.

After briefly reviewing these research studies, this investigator felt that some definite differences did exist between various groups of athletes and non-athletes in regard to personality traits, as well as the intelligence factor. Champion athletes differed from the average athletes in that they were more egotistical, more self-confident, formed more definite opinions and attitudes, were more aggressive and lacked strict emotional control.

In the study dealing with intelligence, the subjects that were tested showed a difference in the intelligence

level, with the non-athletes being at a higher level than the athletes.

In the comparison of athletes and non-athletes for personality traits, in general, the athlete was more aggressive, more confident, and more sociable than the non-athlete, and the participants in team sports were significantly higher in the means of those traits than were the participants of individual sports.

CHAPTER III

TABULATION AND INTERPRETATION OF DATA

The investigator obtained the raw scores for the Field Event Participants, Distance Runners, and Sprinters by hand scoring the results of the Thurstone Temperament Schedule which tested the following seven personality traits: Active, Vigorous, Impulsive, Dominance, Stability, Sociability, and Reflective. The raw scores were tabulated and arranged and may be found in Appendix A.

I. TABULATION PROCEDURE

In determining whether or not there were any appreciable or significant differences among the three groups of subjects that were tested on each of the seven personality traits, the statistical methods recommended by Clarke,[1] Garrett,[2] Lindquist,[3] and Alder and Roessler[4] were used.

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[1]Harrison H. Clarke, Application of Measurements to Health and Physical Education (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1967), pp. 393-416.

[2]Henry E. Garrett, Elementary Statistics (New York: David McKay Company, 1962), pp. 122-23.

[3]E. F. Lindquist, A First Course in Statistics (Cambridge, Massachusetts: The Riverside Press, 1942), pp. 130-40, 240.

[4]Henry L. Alder and Edward B. Roessler, Introduction to Probability and Statistics (San Francisco, California: W. H. Freeman and Company, 1964), p. 125.

The first step was to determine the average mean raw score for each of the groups tested on each of the seven personality traits. A procedure suggested by Clarke was used in arranging the raw scores on frequency tables.[1] The following formula was applied to the twenty-one frequencies in determining the average raw score for each group tested for each personality trait.

$$Mn = GA + \left(\frac{\Sigma fd}{N}\right) \times SI.$$

(The mean equals the guessed average, plus the product of the interval size times the sum of the frequency times deviation products divided by the number of subjects.)

After obtaining the average performance of each group in the form of the mean, the next step was to determine the spread of the scores around the statistical average. The method used in determining this measure of variability was to obtain the standard deviation (SD). According to Clarke, the SD is what should be used when the most reliable measure of variability is wanted.[2] The formula for calculating the SD was as follows:

$$SD = \sqrt{\frac{\Sigma fd^2}{N} - \left(\frac{\Sigma fd}{N}\right)^2} \times SI.$$

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[1]Clarke, op. cit., p. 398. [2]Ibid., p. 404.

(The standard deviation equals the square root of the product of the interval size times the sum of the frequency times deviation products squared divided by the number of subjects, minus the product of the interval size times the sum of the frequency times deviation products divided by the number of subjects squared.)

After obtaining the mean and the standard deviation as computed above, it is necessary to determine the reliability of these two computations.

Clarke suggested that the mean be extracted by measuring the standard error of the mean by using the following formula:[1]

$$S.E.M. = \frac{S.D.}{\sqrt{N - 1}} .$$

(The standard error of the mean equals the standard deviation divided by the square root of the number of subjects minus one.)

In order to obtain the answer to the problem of this study, it became evident, the differences between the means would have to be reliable and this reliability of the

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[1] Ibid., p. 415.

differences between the means would, according to Clarke, be obtained by the formula:[1]

$$\text{S.E. of Diff. of Mns.} = \sqrt{\text{S.E.}^2 M_1^2 + \text{S.E. } M_2^2}\ .$$

(The standard error to the differences between the means equals the square root of: the standard error of the first mean squared plus the standard error to the second mean squared.)

At this point in the problem, it became necessary to test for significant differences between the groups tested in each personality trait. Lindquist suggested the formula for the ratio (t) for the differences in means.[2] The formula is:

$$\underline{t} = \frac{M_1 - M_2}{\sqrt{\text{S.E.}M_1^2 + \text{S.E.}M_2^2}}\ .$$

($\underline{t}$ equals the first mean minus the second mean divided by the square root of the standard error of the first mean squared plus the standard error of the second mean squared.)

According to Clarke, a 5 per cent level of significance is, in most cases, approved by statisticians to judge the

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[1] Ibid., p. 416.

[2] Lindquist, op. cit., p. 130.

value of the statistics.[1] This 5 per cent level of significance was selected by the investigator to demonstrate statistical significance.

In using this method, the investigator also took into account the number of degrees of freedom, which according to Alder and Roessler, was the total number of variates minus the number of independent relationships existing among them.[2]

Garrett shows that the degrees of freedom are computed by using the following formula:[3]

$$d.f. = N + N - 2.$$

(The degrees of freedom equals the number of subjects in the first group plus the number of subjects in the second group minus two.)

Since there are twenty-two Field Event Participants, twenty-four Distance Runners, and thirty-two Sprinters, the degrees of freedom that were employed were forty-four, fifty-two, and fifty-four, depending on which groups were being tested and compared.

Lindquist referred to a Table for Critical Values of Significance.[4] On this table, it was pointed out that a

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[1] Clarke, op. cit., p. 416.

[2] Alder and Roessler, op. cit., p. 125.

[3] Garrett, op. cit., p. 123.

[4] Lindquist, op. cit., p. 240.

significant difference at the 5 per cent level of significance for the forty-four, fifty-six, and fifty-eight degrees of freedom, a *t* test ratio of greater than 2.000 would have to be achieved.

Using the above statistical procedure, it was then possible to interpret the data.

II. INTERPRETATION OF DATA

To interpret the data that has been collected and subjected to the above statistical procedures, it is necessary to refer to Tables I through VII. The material contained in the tables was the result of the above procedure.

In Table I the three groups, Field Event Participants, Distance Runners, and Sprinters were compared for the Active (A) trait. On this trait, the *t* scores of .645, .129, and .829 were not significant to the 5 per cent level of 2.000. The comparison between Sprinters and Distance Runners gave a *t* score of .829, which was the largest *t* score of the trait, but it was not large enough to be statistically significant.

TABLE I

t TEST OF DIFFERENCE BETWEEN MEANS OF TTS ACTIVE (A) RAW SCORES FOR FIELD EVENT PARTICIPANTS, DISTANCE RUNNERS, AND SPRINTERS AT THE UNIVERSITY OF NEBRASKA AT OMAHA AND THE UNIVERSITY OF NEBRASKA AT LINCOLN, 1970-71

Groups	Mn	S.D.	S.E. of Diff.	t
Field Event Participants	11.365	2.837	.888	.645
Distance Runners	10.792	3.055		
Field Event Participants	11.365	2.837	.806	.129
Sprinters	11.469	2.883		
Sprinters	11.469	2.883	.817	.829
Distance Runners	10.792	3.055		

Table II shows the results of the Vigorous (V) trait. It shows significantly that the subjects from the Field Event Participants were more vigorous than the Distance Runners and the Sprinters. The t score for the difference between the Field Event Participants and Distance Runners was 2.080 while the t score for the difference between the Field Event Participants and Sprinters was 2.181. This was greater than the 5 per cent level of significance of 2.000.

TABLE II

t TEST OF DIFFERENCE BETWEEN MEANS OF TTS VIGOROUS (V) RAW SCORES FOR FIELD EVENT PARTICIPANTS, DISTANCE RUNNERS, AND SPRINTERS AT THE UNIVERSITY OF NEBRASKA AT OMAHA AND THE UNIVERSITY OF NEBRASKA AT LINCOLN, 1970-71

Groups	Mn	S.D.	S.E. of Diff.	*t*
Field Event Participants	14.091	3.088	.845	2.080*
Distance Runners	12.333	2.444		
Field Event Participants	14.091	3.088	.844	2.181*
Sprinters	12.250	2.828		
Sprinters	12.250	2.828	.719	.115
Distance Runners	12.333	2.444		

*Significant at a 5 per cent level.

Table III measures the Impulsive (I) trait. It was found there was no statistically significant difference in the *t* score between the three groups that were tested. The *t* score for the comparison between the Field Event Participants and Distance Runners is the same as the *t* score for the comparison between the Field Event Participants and Sprinters. The Sprinters scored higher on the Mean than the other two groups but the differences were not statistically significant.

TABLE III

t TEST OF DIFFERENCE BETWEEN MEANS OF TTS IMPULSIVE (I) RAW SCORES FOR FIELD EVENT PARTICIPANTS, DISTANCE RUNNERS, AND SPRINTERS AT THE UNIVERSITY OF NEBRASKA AT OMAHA AND THE UNIVERSITY OF NEBRASKA AT LINCOLN, 1970-71

Groups	Mn	S.D.	S.E. of Diff.	*t*
Field Event Participants	12.182	3.214	.863	.211
Distance Runners	12.000	2.415		
Field Event Participants	12.182	3.214	.915	.211
Sprinters	12.375	3.273		
Sprinters	12.375	3.214	.775	.484
Distance Runners	12.000	2.415		

In Table IV, the Dominance (D) trait was tested. The Distance Runners tested higher on the mean than either the Sprinters or Field Event Participants. In the comparison of the Field Event Participants and Distance Runners the *t* score of 1.045 was not equal to the *t* score of 2.000 which equals the 5 per cent level of significance. Therefore, there was no statistically significant difference between any two of the groups for this trait.

TABLE IV

t TEST OF DIFFERENCE BETWEEN MEANS OF TTS DOMINANT (D) RAW SCORES FOR FIELD EVENT PARTICIPANTS, DISTANCE RUNNERS, AND SPRINTERS AT THE UNIVERSITY OF NEBRASKA AT OMAHA AND THE UNIVERSITY OF NEBRASKA AT LINCOLN, 1970-71

Groups	Mn	S.D.	S.E. of Diff.	*t*
Field Event Participants	7.045	4.290	1.313	1.045
Distance Runners	8.417	4.415		
Field Event Participants	7.045	4.290	1.109	.389
Sprinters	7.875	3.756		
Sprinters	7.875	3.756	1.088	.498
Distance Runners	8.417	4.415		

In testing the fifth trait, which was the Stable (E) trait, no significance to the 5 per cent level was found. A comparison of Field Event Participants to Distance Runners showed a *t* score of 1.258, which was not equal to the 2.000 needed for a 5 per cent level of significance. The Sprinters had the highest mean score but the difference was not great enough to be considered significant for this study.

TABLE V

t TEST OF DIFFERENCE BETWEEN MEANS OF TTS STABLE (E) RAW SCORES FOR FIELD EVENT PARTICIPANTS, DISTANCE RUNNERS, AND SPRINTERS AT THE UNIVERSITY OF NEBRASKA AT OMAHA AND THE UNIVERSITY OF NEBRASKA AT LINCOLN, 1970-71

Groups	Mn	S.D.	S.E. of Diff.	*t*
Field Event Participants	8.136	2.768	.968	.376
Distance Runners	8.500	3.629		
Field Event Participants	8.136	2.768	.786	1.258
Sprinters	9.125	2.803		
Sprinters	9.125	2.803	.909	.688
Distance Runners	8.500	3.629		

In measuring the Sociability (S) trait it was found the Distance Runners and Sprinters had almost the same mean score and it was higher than the Field Event Participants. A comparison between Field Event Participants and Distance Runners showed a *t* score of 1.543 which was not enough to equal the *t* score of 2.000 needed for the 5 per cent level of significance. There was a *t* score of 1.592 in the comparison between the Field Event Participants and the Sprinters, but again it was too small for the 5 per cent level of significance.

TABLE VI

t TEST OF DIFFERENCE BETWEEN MEANS OF TTS SOCIABLE (S) RAW SCORES FOR FIELD EVENT PARTICIPANTS, DISTANCE RUNNERS, AND SPRINTERS AT THE UNIVERSITY OF NEBRASKA AT OMAHA AND THE UNIVERSITY OF NEBRASKA AT LINCOLN, 1970-71

Groups	Mn	S.D.	S.E. of Diff	*t*
Field Event Participants	9.364	3.638	1.060	1.543
Distance Runners	11.000	3.366		
Field Event Participants	9.364	3.638	.949	1.592
Sprinters	10.875	2.902		
Sprinters	10.875	2.902	.874	.143
Distance Runners	11.000	3.366		

Table VII shows a comparison between Field Event Participants, Distance Runners, and Sprinters for the Reflective (R) trait. Only a slight difference was noted between any of the groups, although the Sprinters had the highest mean score. It was not great enough to have the 5 per cent level of significance needed in this comparison.

TABLE VII

t TEST OF DIFFERENCE BETWEEN MEANS OF TTS REFLECTIVE (R) RAW SCORES FOR FIELD EVENT PARTICIPANTS, DISTANCE RUNNERS, AND SPRINTERS AT THE UNIVERSITY OF NEBRASKA AT OMAHA AND THE UNIVERSITY OF NEBRASKA AT LINCOLN, 1970-71

Groups	Mn	S.D.	S.E. of Diff.	t
Field Event Participants	7.591	3.810	1.039	.353
Distance Runners	7.958	2.993		
Field Event Participants	7.591	3.810	.993	.476
Sprinters	8.063	3.031		
Sprinters	8.063	3.031	.828	.127
Distance Runners	7.958	2.993		

CHAPTER IV

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The problem of this study was to compare, by the Thurstone Temperament Schedule, the personality ratings of thirty-two sprinters, twenty-four distance runners, and twenty-two field event participants from the University of Nebraska at Omaha and the University of Nebraska at Lincoln. Through the use of the statistical method described in Chapter III, the results were noted.

I. SUMMARY

In testing for the Active (A) Personality Trait no statistically significant differences between the groups were found. The greatest difference existed between the Sprinters and Distance Runners, but was not great enough to be at the 5 per cent level of significance. The Field Event Participants were significantly more vigorous than either the Sprinters or Distance Runners. The t score of 2.080 in the comparison between the Field Event Participants and Distance Runners was greater than the 2.000 needed for the 5 per cent level of significance. In the comparison between the Field Event Participants and Sprinters, there was a t score of 2.181 which was higher than the 2.000

needed to be of significance. There was no significance to the 5 per cent level in the comparisons made between the three groups for the Dominance (D) trait. The comparisons between the Field Event Participants and Distance Runners, and Field Event Participants and Sprinters gave the same t score. In the comparison of the Stable (E) trait, there was no significance at the 5 per cent level. Field Event Participants had a higher standard deviation than either Sprinters or Distance Runners, but in the comparison made between the three groups, the 5 per cent level of significance was not reached. The results of testing and comparing the Reflective (R) trait gave no significance at the 5 per cent level.

II. CONCLUSIONS

This study has shown that there were some significant differences between Field Event Participants, Distance Runners, and Sprinters as measured by the Thurstone Temperament Schedule. Although only one of the seven traits tested and compared gave a 5 per cent level of significance, several of the other traits were close to the level of significance required to be statistically significant.

An interesting finding of this particular study was that the Sprinters and Distance Runners were more closely related in the personality traits, than were the Field Event

Participants and Distance Runners, and the Field Event Participants and Sprinters.

This study gave credence to the belief held by many persons that Field Event Participants are different in some personality traits than Sprinters and also Distance Runners.

In other related studies, the results have indicated that differences in personality traits do exist in similar groups. Although only one of the related research studies that were explored used the Thurstone Temperament Schedule as a measuring device, and none of the other studies compared track and field participants within their own group; the findings in this study generally supported the comparisons made in other projects.

III. RECOMMENDATIONS

It is recommended that more studies of a like nature be conducted particularly with the Thurstone Temperament Schedule as the measuring device. It is urged that a study be made comparing football linemen with football backfield men; and another comparing defensive football players with offensive football players. It is hoped another study can be made comparing Iowa high school male track and field participants with Iowa high school female track and field

participants using the Thurstone Temperament Schedule.

Continued studies in the area of personality should be made covering all forms and types of athletics, in order to obtain a clearer analysis of personality adjustment and traits of athletic groups. This will enable the teacher-coach to better teach and motivate his respective group.

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APPENDICES

APPENDIX A

RAW DATA FOR SELECTED FIELD EVENT PARTICIPANTS, DISTANCE RUNNERS AND SPRINTERS BY THE THURSTONE TEMPERAMENT SCHEDULE AT UNIVERSITY OF NEBRASKA AT OMAHA AND UNIVERSITY OF NEBRASKA AT LINCOLN, 1970-71

PART 1

RAW DATA FOR SPRINTERS AS MEASURED BY THE THURSTONE TEMPERAMENT SCHEDULE

Subject	Active	Vigorous	Impulsive	Dominant	Stable	Sociable	Reflective
1	10	14	9	5	9	8	12
2	18	15	16	14	7	11	10
3	10	12	10	3	7	4	9
4	8	9	9	4	10	9	10
5	15	8	7	6	8	9	6
6	13	12	12	10	7	13	8
7	11	8	10	2	8	7	12
8	5	11	13	6	8	15	4
9	14	11	14	13	11	13	7
10	14	15	9	6	11	8	6
11	12	16	17	4	13	10	6
12	10	11	13	6	10	13	6
13	11	13	9	10	12	12	8
14	16	13	13	9	14	15	9
15	10	15	12	8	7	14	2
16	8	11	13	4	3	7	4
17	10	13	14	14	12	11	11
18	13	15	14	6	11	12	9
19	14	15	12	5	8	11	10
20	15	15	16	11	9	15	13
21	8	4	7	7	6	7	11
22	12	12	15	9	12	10	8
23	14	15	17	7	8	12	14
24	12	7	10	7	9	11	7
25	14	11	12	14	5	15	6

PART 1 (continued)

Subject	Active	Vigorous	Impulsive	Dominant	Stable	Sociable	Reflective
26	6	10	6	4	8	6	10
27	8	13	17	10	15	12	10
28	9	13	5	3	6	8	6
29	13	13	12	6	14	10	5
30	12	14	14	12	6	12	3
31	11	17	17	10	7	15	12
32	11	11	12	17	11	13	4

PART II

RAW DATA FOR DISTANCE RUNNERS AS MEASURED BY THE THURSTONE TEMPERAMENT SCHEDULE

Subject	Active	Vigorous	Impulsive	Dominant	Stable	Sociable	Reflective
1	6	9	8	8	5	5	9
2	8	10	13	5	7	10	8
3	10	11	13	11	13	12	8
4	6	13	6	14	7	14	10
5	13	14	12	14	15	11	8
6	8	14	10	7	4	7	8
7	8	16	13	12	12	14	7
8	8	14	10	8	4	12	7
9	16	10	14	11	11	9	6
10	10	14	13	7	11	15	2
11	14	15	12	7	6	10	9
12	9	10	9	2	15	11	5
13	12	15	14	12	1	15	10
14	14	16	17	15	10	9	8
15	15	15	15	18	9	14	8
16	12	13	14	3	9	9	10
17	11	9	11	9	7	12	5
18	7	9	12	5	10	11	3
19	14	11	13	6	6	14	6
20	13	14	9	3	5	6	17
21	12	10	11	12	6	17	11
22	9	8	11	0	7	3	10
23	8	14	14	8	14	14	5
24	16	12	14	5	10	10	11

PART III

RAW DATA FOR FIELD EVENT PARTICIPANTS AS MEASURED BY THE THURSTONE TEMPERAMENT SCHEDULE

Subject	Active	Vigorous	Impulsive	Dominant	Stable	Sociable	Reflective
1	11	18	11	3	13	8	7
2	11	10	12	7	8	8	5
3	14	20	18	7	11	11	5
4	9	11	7	6	6	3	12
5	12	11	13	3	14	9	6
6	14	17	10	4	6	3	12
7	17	14	16	7	6	10	3
8	9	15	11	10	7	15	5
9	7	11	9	7	8	12	12
10	10	16	11	12	8	12	12
11	13	16	18	7	10	13	6
12	8	13	8	2	6	7	9
13	12	10	10	2	7	6	3
14	17	16	10	3	10	9	10
16	12	16	17	16	12	11	13
17	8	16	14	17	12	15	10
18	12	17	16	6	4	7	9
19	7	12	12	3	6	7	3
20	13	13	12	4	7	8	8
21	12	7	10	13	4	12	14
22	14	15	8	5	8	4	12

APPENDIX B

MATERIALS USED IN THE STUDY

SRA SCIENCE RESEARCH ASSOCIATES

THURSTONE

TEMPERAMENT SCHEDULE

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THURSTONE TEMPERAMENT SCHEDULE

by

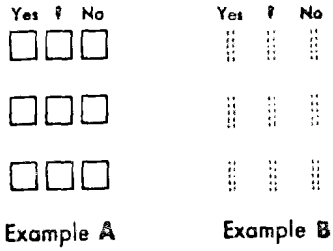
Dr. L. L. Thurstone

This schedule was developed to show types of temperament. It is a list of questions about likes and dislikes, preferences and habits, in everyday life.

There are no right or wrong answers to these questions; one answer can be just as good as some other answer. Be sure to follow the instructions below carefully. Only by doing so will you obtain results which are accurate and of value to you.

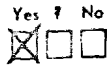
Two different types of answer sheets may be used with this booklet.

If your answer sheet looks like example A, follow the instructions under A, below. If your answer sheet looks like example B, follow the instructions under B, below.

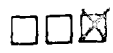


INSTRUCTIONS FOR MARKING ANSWERS

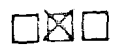
A For each question, make a cross in the square for the answer that fits you best. If your answer is *Yes*, mark the box under the Yes:



If your answer is *No*, mark the box under the No:



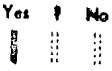
If you cannot decide, mark the box under the question mark:



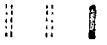
If you want to change an answer, draw a circle around your first answer and mark the box for the answer you prefer. *Do NOT erase* any answer you have marked.

Be sure that you put the answers to each page in the proper column. Whenever you turn a page, make certain that the answer sheet lines up with the questions. Be sure to answer all of the questions.

B For each question, make a *heavy black mark* in the space for the answer that fits you best. If your answer is *Yes*, fill in the space under the Yes:



If your answer is *No*, fill in the space under the No:



If you cannot decide, fill in the space under the question mark:

If you want to change an answer, erase your first mark completely. Then fill in the space for the answer you prefer.

Important: Please use the special pencil with which you are provided. Your answer sheet will be scored by a machine which takes advantage of the fact that the graphite in the pencil marks conducts electricity. It is very important that you indicate your answer to each item with a *heavy black mark* which fills the space from top to bottom, as in the example above. If you want to rest your pencil while you are reading a question, keep the point on the last answer you have made.

Be sure that you put the answers to each page in the proper column. Whenever you turn a page, make certain that the answer sheet lines up with the questions. Be sure to answer all of the questions.

NOW GO AHEAD WITH THE QUESTIONS ON THE NEXT PAGE.

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6789/2—9

Please use number 7-831 when reordering this test booklet.

1. Are you more restless and fidgety than most people?
2. Do you ordinarily work quickly and energetically?
3. In conversation, do you often gesture with hands and head?
4. Do you drive a car rather fast?
5. Do you enjoy spending leisure time on physical work?
6. Do you have a low-pitched voice?
7. Do you enjoy having a good physical work-out?

---

8. Do you enjoy working with tools?
9. Do you let yourself go and have a gay time at a party?
10. Do you often make people laugh?
11. Do you like to be where there is something doing all the time?
12. Do you usually notice the furniture or rugs in a strange house?
13. Do you find it difficult to speak before an audience?
14. Do you often take the initiative in planning for a party?

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15. Do you often tell stories to entertain others?
16. Do you like to be the chairman of a meeting?
17. Is your mood easily influenced by people around you?
18. Can you relax in a noisy room?
19. Do you often see so many alternatives that a decision is difficult?
20. Do you remain calm when a friend is in pain?
21. Do you often praise and encourage your friends?

22. Do you like work requiring many conferences with new people?

23. Do you spend many evenings with friends?

24. Do you like work that requires much talking?

25. Do you often contribute new ideas in your work?

26. Are you considered to be absent-minded?

27. Do you like work that must be very systematic and orderly?

28. Are you often bored with people?

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29. Are you rather deliberate in telephone conversations?

30. Are you often in a hurry?

31. As a boy (or girl), did you prefer work in which you could move around?

32. Do people consider you to be rather quiet?

33. Do you like work that requires physical exertion?

34. Do you swear often?

35. Do you often participate in physical sports?

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36. Are you handy with tools?

37. Do you like work that has a lot of excitement?

38. Do you like work requiring patience and carefulness?

39. Are you frequently considered to be "happy-go-lucky"?

40. Do you make up your mind easily?

41. Do you enjoy being the host at a party?

42. Do you enjoy presenting a new project before a group?

43. Do you enjoy promoting a new project?

44. Do you like to introduce the speaker at a meeting?

45. Can you study with the radio on?

46. Do you often alternate between happiness and sadness?

47. Do you tend to become hungry quickly with a sudden pang?

48. Are you usually cool and composed in a dangerous situation?

49. Are there some foods that you strongly dislike?

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50. Do you get acquainted with your neighbors?

51. Are you sometimes considered to be cold and unsympathetic?

52. Do you like work that puts you in contact with a lot of people?

53. Do you like to work with theoretical ideas?

54. As a child, were you inclined to take life seriously?

55. Do you like working alone?

56. When you have an important problem, do you prefer to think it through alone?

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57. Do you talk more slowly than most people?

58. Do you usually work fast?

59. Do you usually speak louder than most people?

60. Do you eat rapidly even when there is plenty of time?

61. Have you ever done any hunting?

62. Do you like fishing?

63. Have you participated in wrestling?

64. Have you played on a baseball team?

65. Do you like work involving competition?

66. Do you like work in which you must change often from one task to another?

67. In watching a game, do you yell along with the others?

68. Do you usually have a "ready answer"?

69. Do you enjoy introducing people?

70. Do people have to go more than halfway to get to know you?

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71. Do you frequently keep in the background on social occasions?

72. Do you assume responsibilities without much hesitation?

73. Can you work under distraction?

74. Do you often fret about the little daily chores?

75. Are you annoyed to leave a task unfinished?

76. When you are emotionally upset, do you tend to lose your appetite?

77. Do you usually agree with the group about how things should be done?

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78. Do you easily win the friendship of strangers?

79. Do you feel sentimental about anniversaries and birthdays?

80. Do people readily tell you about their personal troubles?

81. Do you like work that requires scientific precision?

82. Do you like work that requires much reading?

83. Do you often like to change devices and procedures?

84. Do you often prefer to spend an evening alone?

85. Do you prefer to linger over a meal and enjoy it?

86. Do you like work that is slow and deliberate?

87. Do you often let a problem work itself out by waiting?

88. Do you like to drive a car rather fast when there is no speed limit?

89. Do you like work in which there is vigorous activity?

90. Do you enjoy a race or game better when you bet on it?

91. Have you ever been captain of a team?

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92. Are you resourceful in fixing mechanical things about the house?

93. Do you frequently feel "on top of the world"?

94. Do you remember the names of people you meet?

95. Do you like to take a chance just for the excitement?

96. In the morning, do you usually bound out of bed energetically?

97. Were you bashful when you were a child?

98. Are you likely to take charge in case of an accident?

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99. Would you enjoy being the toastmaster at a banquet?

100. Do you like work in which you must influence others?

101. Does it irritate you to be interrupted when you are concentrating?

102. Can you return to work easily?

103. Does it bother you to have to finish a job by a dead-line?

104. Do you often feel impatient?

105. Do you tend to join many organizations?

106. Are you relatively free from self-consciousness?

107. Do you like working as a member of a group?

108. Can you put strangers at ease?

109. Do you tend to take on more things than you can finish well?

110. Did you often play alone as a child?

111. Do you like to invent new procedures and devices?

112. Are you more interested in planning a project than in carrying it out?

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113. Is your handwriting rather fast?

114. Do you often work slowly and leisurely?

115. Do you often try to persuade others to your points of view?

116. Do you generally walk faster than most people?

117. Have you ever done any racing?

118. Have you done horseback riding as a sport?

119. Have you participated in boxing?

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120. Have you played on a football team?

121. Do you spend much of your leisure time out-of-doors?

122. Do you usually make up your mind quickly?

123. As a youngster, were you occasionally the leader in a reckless stunt?

124. Do you frequently forget things?

125. Do you find it easy to give instructions to servants?

126. Do you often wait and let others take the initiative?

127. Do you avoid public speaking?

128. At a party, do you often find yourself talking to a group of people?

129. Does it take a long time in the morning before you are fully awake?

130. Are you generally regarded as optimistic?

131. Are you often annoyed to have to leave your work?

132. Are your hands and feet often cold?

133. Is it easy for you to express yourself in conversation?

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134. Does it usually take a long time to get acquainted with you?

135. Do you have a large and sprawling handwriting?

136. Are you at ease in a large group of people?

137. Do you often get behind in your work?

138. Do you like work where you have peace and quiet?

139. Do you like work that requires accuracy in fine detail?

140. Do you often find books more interesting than people?